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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,605	MINAGAWA, TOMONORI	
Examiner	Art Unit		
Christian La Forgia	2131		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 January 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-33 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 28 January 2005 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/15/05.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application
6) Other: ____ .

DETAILED ACTION

1. Claims 1-33 have been presented for examination.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority. ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 15 March 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Drawings

4. Figures 1 and 11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 5 and 20 are objected to because of the following informalities: Claims 5 and 20 recite "said secret key encryption means functions as public key encryption means for performing encrypt based on the public key cryptosystem, performs the encryption based on the public key cryptosystem." For the purposes of examination, the Examiner shall interpret claims 5 and 20 as "said secret key encryption means functions as public key encryption means for

performing the encryption based on the public key cryptosystem.” Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 11 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "roughly" in claims 11 and 26 is a relative term which renders the claim indefinite. The term "roughly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. See MPEP § 2173.05(b).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 1, 2, 4, 5, 12-15, 17-20, 27-30, 32, and 33 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,711,677 to Wiegley, hereinafter Wiegley.

10. As per claims 1, 17, 32 and 33, Wiegley teaches a print control apparatus which transmits a printing job including printing data to a specified image forming apparatus through a communications medium, and controls the printing data to be printed by the specified image forming apparatus, comprising:

printing data encryption means for encrypting the printing data in a specified encrypting method in printing the printing job (Figures 3A, 4A, 5A, 6A, and 7A [block 116], column 4, line 57 to column 5, line 3, i.e. print data is encrypted using any conventional encryption algorithm, such as DES, RSA's RC4, or IDEA);

obtaining means for obtaining information about a destination for the image forming apparatus (Figures 3A, 4A, 5A, 6A, and 7A [block 114], column 4, lines 52-56, i.e. sending the encrypted session identifier to the printer); and

decryption means for decrypting information about the destination obtained by said obtaining means (Figures 3B, 4B, 5B, 6B, and 7B [block 120], column 5, lines 4-24, i.e. decrypting the session identifier).

11. Regarding claims 2 and 18, Wiegley teaches a feature amount computation means for computing a feature amount from the printing data (Figures 4A [block 111], 5A [block 117], 6A [block 140], 7A [block 190], column 5, lines 25-47, i.e. computing a hash value); and printing job transmission means for including the feature amount computed by said feature amount computation means in the printing job and transmitting the feature amount to the specified image forming apparatus through the communications medium (Figures 5A [block 121], 6A [block 144], 7A [block 121], column 5, line 47 to column 6, line 6, i.e. printer receiving hash value).

12. Regarding claims 4 and 19, Wiegley teaches wherein said printing data encryption means functions as public key encryption means for performing encryption based on a public key cryptosystem, and encrypts the printing data using a public key of the image forming apparatus

specified for printing the printing data based on the public key cryptosystem (column 4, lines 30-46).

13. Regarding claims 5 and 20, Wiegley teaches a secret key generation means for generating a secret key commonly used by the image forming apparatus specified for printing the printing data (Figures 3A, 4A, 5A, 6A, and 7A [block 110], column 4, lines 47-66, i.e. generating session key);

secret key encryption means for encrypting the secret key generated by said secret key generation means (Figures 3A, 4A, 5A, 6A, and 7A [block 112], column 4, lines 47-66, i.e. encrypting the session key using printer's public key); and

printing job transmission means for including the secret key encrypted by said secret key encryption means in the printing job (Figures 3A, 4A, 5A, 6A, and 7A [block 114], column 4, lines 47-66, i.e. transmitting the encrypted session key to printer), and transmitting the key to the communications medium wherein:

said printing data encryption means functions as common key encryption means for performing encryption based on a conventional encryption system, and encrypts the printing data using the secret key generated by said secret key generation means based on the conventional encryption system (Figures 3A, 4A, 5A, 6A, and 7A [block 116], column 4, line 57 to column 5, line 3, i.e. print data is encrypted using any conventional encryption algorithm, such as DES, RSA's RC4, or IDEA); and

said secret key encryption means functions as public key encryption means for performing the encryption based on the public key cryptosystem, and encrypts the secret key

using a public key of the image forming apparatus specified for printing the printing data (Figures 3A, 4A, 5A, 6A, and 7A [block 112], column 4, lines 47-66, i.e. encrypting the session key using printer's public key).

14. As per claims 12 and 27, Wiegley teaches an image forming apparatus which prints encrypted printing data contained in a printing job received through a communications medium, comprising:

printing data decryption means for decrypting the printing data in a predetermined decrypting method for the encrypted printing data (Figures 4B, 5B, and 6B [block 124], column 5, lines 4-24, column 4, lines 58-66, i.e. decrypting the print data);

feature amount obtaining means for obtaining a feature amount from the received printing job (Figures 5A [block 121], 6A [block 144], 7A [block 121], column 5, line 47 to column 6, line 6, i.e. printer receiving hash value);

feature amount computation means for computing a feature amount from the printing data decrypted by said printing data decryption means (Figures 5B [block 133], 6B [block 146], 7B [blocks 194], column 5, line 47 to column 6, line 28, i.e. printer decrypts session identifier and/or print data and computes a hash of the data);

transfer means for encrypting and transferring information about a destination corresponding to an image forming apparatus (Figures 3A, 4A, 5A, 6A, and 7A [block 114], column 4, lines 52-56, i.e. sending the encrypted session identifier to the printer); and

printing data confirmation means for comparing the feature amount computed by said feature amount computation means with the feature amount obtained by said feature amount obtaining means, and confirming that the encrypted and received printing data has not been

destroyed or falsified if a comparison result indicates matching feature amounts (Figures 4B [blocks 127, 129], 5B [blocks 135, 137], 6B [blocks 148, 150], 7B [blocks 196, 137], column 5, line 47 to column 6, line 44).

15. Regarding claims 13 and 28, Wiegley teaches wherein said printing data decryption means functions as public key decryption means for performing decryption based on a public key cryptosystem, performs the decryption to decrypt the encrypted and received printing data using a private key of said printing data decryption means, and obtains the printing data (column 4, lines 30-46, column 4, line 62-66).

16. Regarding claims 14 and 29, Wiegley teaches a secret key retrieval means for retrieving an encrypted secret key from the received printing job (Figures 3A, 4A, 5A, 6A, and 7A [block 114], column 4, lines 47-66, i.e. transmitting the encrypted session key to printer); and

secret key obtaining means for performing decryption based on a public key cryptosystem on the encrypted secret key retrieved from said secret key retrieval means, decrypting the encrypted secret key using a private key of said secret key obtaining means, and obtaining the secret key of the printing job (Figures 3B, 4B, 5B, 6B, and 7B [block 120], column 5, lines 4-24, i.e. decrypting the session key), wherein

said printing data decryption means functions as common key decryption means for performing decryption based on a conventional encryption system, applies the conventional encryption system to decrypt the encrypted printing data using the secret key, and obtains printing data (Figures 4B, 5B, and 6B [block 124], column 5, lines 4-24, column 4, lines 58-66, i.e. decrypting the print data).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 6, 15, 21 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiegley in view of U.S. Patent Application Publication No. 2002/0042884 to Wu et al., hereinafter Wu.

19. With regards to claims 6 and 21, Wiegley does not teach digital signature generation means for generating a digital signature by performing encryption based on a public key cryptosystem on the feature amount computed by said feature amount computation means and encrypting the feature amount using a private key of said digital signature generation means, wherein said printing job transmission means includes in the printing job the digital signature generated by said digital signature generation means instead of the feature amount computed by said feature amount computation means, and transmits the printing job to the communications medium.

20. Wu teaches digital signature generation means for generating a digital signature by performing encryption based on a public key cryptosystem on the feature amount computed by said feature amount computation means and encrypting the feature amount using a private key of said digital signature generation means, wherein said printing job transmission means includes in the printing job the digital signature generated by said digital signature generation means instead

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of the feature amount computed by said feature amount computation means, and transmits the printing job to the communications medium (paragraphs 0010, 0036, 0092, 0122, 0124, 0172, 0504).

21. It would have obvious to one of ordinary skill in the art at the time the invention was made to include a digital signature, since Wu states at paragraph 0001 that the features are used to authenticate and control the usage of the documents received at the printer, thereby preventing unauthorized recipients from printing or modifying the documents.

22. Regarding claims 15 and 30, Wiegley teaches obtaining means obtains a feature amount by decrypting the hash retrieved by said hash retrieval means based on a public key decrypting method using public key of a source of the printing job (Figures 5B [block 133], 6B [block 146], 7B [blocks 194], column 5, line 47 to column 6, line 28, i.e. printer receives hash and decrypts it and then decrypts session identifier and/or print data and computes a hash of the data);

said printing data confirmation means compares the feature amount computed from the printing data decrypted by said printing data decryption means with the feature amount obtained by said feature amount obtaining means, confirms that the feature amounts match each other, thereby confirming that the source is a specified image forming apparatus driver and that the encrypted and received printing data has not been destroyed or falsified (Figures 4B [blocks 127, 129], 5B [blocks 135, 137], 6B [blocks 148, 150], 7B [blocks 196, 137], column 5, line 47 to column 6, line 44).

23. Wiegley does not teach a digital signature.

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24. Wu teaches the use of a digital signature (paragraphs 0010, 0036, 0092, 0122, 0124, 0172, 0504).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a digital signature instead of the hash, since Wu states at paragraph 0001 that the features are used to authenticate and control the usage of the documents received at the printer, thereby preventing unauthorized recipients from printing or modifying the documents.

26. Claims 3, 7-11, 16, 22-26, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiegley in view of U.S. Patent No. 7,215,437 to Shima, hereinafter Shima.

27. Regarding claim 3, Wiegley does not teach wherein the information about the destination obtained by said obtaining means is a port or a uniform resource identifier (URI) for printing.

28. Shima teaches wherein a central server provides port information (Figure 4, column 6, lines 46-59) and URL information regarding printers (Figure 5B, column 7, lines 21-40).

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the information about the destination obtained by said obtaining means is a port or a uniform resource identifier (URI) for printing, since Shima states at column 1, lines 52-58 that allowing clients to specify their printers and print securely provides for easier management of the print sites.

30. Regarding claims 7 and 22, Wiegley does not teach an image forming apparatus selection means for selecting an image forming apparatus for printing the printing data from the group consisting of a plurality of image forming apparatuses by issuing an inquiry to an image forming

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apparatus management server for managing information about the image forming apparatuses; and image forming apparatus information obtaining means for obtaining information about the image forming apparatus specified for printing the printing data from the image forming apparatus management server.

31. Shima teaches selecting a printer from a group of printers by querying a server (Figures 5A, 5B, 5C, 6, 9, 12 [block 1205], column 3, lines 11-13, column 11, lines 17-29) and obtaining information for the chosen printer from the central server (Figures 3 [blocks 303, 304], 12 [block 1206], column 11, lines 17-29).

32. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select an image forming apparatus for printing the printing data from the group consisting of a plurality of image forming apparatuses by issuing an inquiry to an image forming apparatus management server for managing information about the image forming apparatuses and obtain information about the image forming apparatus specified for printing the printing data from the image forming apparatus management server, since Shima states at column 1, lines 52-58 that allowing clients to specify their printers and print securely provides for easier management of the print sites.

33. With regards to claims 8 and 23, Wiegley teaches printing data encryption means to encrypt the printing data using the key of the image forming apparatus obtained by said image forming apparatus information obtaining means, and transmits the encrypted printing data directly to the address of the image forming apparatus obtained by said image forming apparatus information obtaining means (Figures 3A, 4A, 5A, 6A, and 7A [block 116], column 4, line 57 to

column 5, line 3), and obtaining the encryption key (column 4, lines 30-46).

34. Shima teaches wherein said image forming apparatus information obtaining means obtains an address of the image forming apparatus specified for printing the printing data from the image forming apparatus management server (Figures 5A, 5B, 5C, 6, 9, 12 [block 1205], column 3, lines 11-13, column 11, lines 17-29).

35. With regards to claims 9 and 24, Wiegley teaches wherein said printing data encryption means obtains an encryption key of the image forming apparatus management server (column 4, lines 30-46), encrypts the printing data (Figures 3A, 4A, 5A, 6A, and 7A [block 116], column 4, line 57 to column 5, line 3).

36. Shima discloses transmitting the printing data to the image forming apparatus management server (Figure 1, column 2, lines 17-30, column 4, lines 54-60).

37. With regards to claims 10 and 25, Shima teaches wherein said image forming apparatus selection means selects from the group consisting of a plurality of image forming apparatuses a corresponding image forming apparatus by said image forming apparatus information obtaining means transmitting to the image forming apparatus management server a necessary condition for said image forming apparatus selection means selecting a corresponding image forming apparatus from the group consisting of a plurality of image forming apparatuses (Figures 5A, 5B, 5C, 6, 9, 12 [block 1205], column 3, lines 11-13, column 11, lines 17-29).

38. With regards to claims 11 and 26, Shima teaches wherein the image forming apparatus management server roughly selects corresponding image forming apparatuses from the group consisting of a plurality of image forming apparatuses by said image forming apparatus information obtaining means transmitting to the server a necessary condition for the image forming apparatus management server roughly selecting the corresponding image forming apparatuses from the group consisting of a plurality of image forming apparatuses, and the image forming apparatus management server which has roughly selected the corresponding image forming apparatuses from the group of the plurality of image forming apparatuses interactively communicates with said image forming apparatus selection means, thereby selecting the image forming apparatus for printing the printing data from the group of the plurality of image forming apparatuses (Figures 5A, 5B, 5C, 6, 9, 12 [block 1205], column 3, lines 11-13, column 11, lines 17-29).

39. As per claims 16 and 31, Shima teaches an image forming apparatus management server (Figures 1 and 11 [block 1]) which manages information about an image forming apparatus connected through a communications medium, comprising:

information holding means for holding a list of information including a setting position, a capability, and an encryption key of each available image forming apparatus connected through the communications medium (Figure 4, column 6, lines 46-59);

image forming apparatus selection means for referring to the list of information held by said information holding means in response to an inquiry from a print control apparatus which controls printing of the image forming apparatus, and selects an appropriate image forming

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apparatus for printing data from the group consisting of a plurality of image forming apparatuses (Figures 5A, 5B, 5C, 6, 9, 12 [block 1205], column 3, lines 11-13, column 11, lines 17-29);

image forming apparatus information obtaining means for obtaining in response to an inquiry from the print control apparatus an encryption key and address information about the image forming apparatus selected by said image forming apparatus selection means (Figures 5A, 5B, 5C, 6, 9, 12 [block 1205], column 3, lines 11-13, column 11, lines 17-29);

decrypting the encrypted printing data received from the print control apparatus using the key held by said information holding means, re-encrypting the decrypted printing data using the key of the image forming apparatus obtained by said image forming apparatus information obtaining means, and transmitting the re-encrypted printing data to the address obtained by said image forming apparatus information obtaining means (Figures 1 and 11, column 4, line 31 to column 5, line 32).

40. Shima does not teach obtaining a key.

41. Wiegley teaches obtaining a key for a printer (column 4, lines 30-46).

42. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the server to include key information in the printer management table, since Wiegley states at that such a modification would reduce or eliminate the risk of replay attacks (column 1, lines 60-65) and detect any possible changes in the print data while in transmission to the printer (column 2, lines 35-53).

Conclusion

43. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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44. The following patents are cited to further show the state of the art with respect to printer encryption, such as:

United States Patent Application Publication No. 2003/0044009 A1 to Dathathraya, which is cited to show secure communication with a network printer.

United States Patent Application Publication No. 2003/0014640 A1 to Loyd, which is cited to show printing using a verification of the user.

United States Patent No. 6,862,583 B1 to Mazzagatte et al., which is cited to show authorizing a printout received at a printer.

United States Patent No. 5,633,932 to Davis et al., which is cited to show preventing disclosure through user-authentication at a printing node.

United States Patent No. 6,314,521 B1 to Debry, which is cited to show secure configuration of a digital certificate for a printer.

United States Patent No. 7,103,182 B2 to Parry, which is cited to show encrypting a print job.

United States Patent No. 7,095,518 B1 to Keeney et al., which is cited to show a spooling server for receiving, storing and forwarding a print job to a printer.

United States Patent No. 7,093,046 B2 to Keeney et al., which is cited to show a spooling server for securely receiving, storing and forwarding a print job to a printer.

United States Patent No. 6,978,299 B1 to Lodwick, which is cited a spooling server for receiving, storing and forwarding a print job to a printer.

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian La Forgia whose telephone number is (571) 272-3792. The examiner can normally be reached on Monday thru Thursday 7-5.

46. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

47. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christian LaForgia
Patent Examiner
Art Unit 2131

clf

A handwritten signature in black ink, appearing to read "CLF", is written over a horizontal line. Below the signature, the initials "clf" are handwritten in a smaller font.